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THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

David M. Emerling, et al.

Serial No.: 09/382,851

Filed: August 25, 1999

Group Art Unit: 2643

Examiner: Lao, Lun S.

For: VEHICULAR AUDIO SYSTEM AND ELECTROMAGNETIC TRANSDUCER
ASSEMBLY FOR USE THEREIN

Attorney Docket No.: LDOS 0230 PUS

REPLY BRIEF

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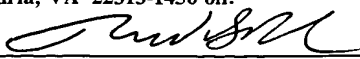
This is a reply brief to the Examiner's Answer mailed July 14, 2004.

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Regarding item (2), Related Appeals and Interferences, a supplemental appeal has been filed to U.S. Application No. 10/049,993, filed April 2, 2002 and titled "VEHICULAR AUDIO SYSTEM INCLUDING A HEADLINER SPEAKER, ELECTROMAGNETIC TRANSDUCER ASSEMBLY FOR USE THEREIN AND COMPUTER SYSTEM PROGRAMMED WITH A GRAPHIC SOFTWARE CONTROL FOR CHANGING THE AUDIO SYSTEM'S SIGNAL LEVEL AND DELAY" which is a continuation-in-part of the present application, and is under a rejection issued by the same Examiner as the present application.

Regarding item (10), Allowable Subject Matter, Applicants' representative thanks Examiner Lao for the indication of allowable subject matter.

Regarding item (11), Grounds of Rejection, the Examiner contends that Warnak teaches an array of piezoelectric transducers which can be substituted by electromagnetic transducers. However, as argued in the Appeal Brief, Warnaka discusses the deficiencies of other types of transducers *vis a vis* piezoelectric transducers (Warnaka, col. 11, ll. 15-28) and nowhere does Warnaka provide disclosure of an enabled alternative embodiment of an invention that implements electromagnetic transducers. As such, Warnaka fails to disclose, teach or suggest an array of electromagnetic transducers as presently claimed.

The Examiner contends that Clark teaches signal processing circuitry coupled to the assemblies...wherein the assemblies convert the processed audio signals into mechanical motion of corresponding zones of the headliner. The Examiner further contends that Clark teaches a system of processed audio signals to be delivered to each electromagnetic transducer assembly (sic, speaker)...and utilizing mechanical mixing of the headliner to move the headliner between the left and right electromagnetic transducer assemblies (sic, speakers). However, the Examiner has mis-characterized Clark. In particular, Clark teaches a control circuit (16) that generates output signals driving speakers (18-29). (Clark, Figs. 1, 3, 4 and

9, and col. 3, ll. 56 through col. 4, l. 44). Nowhere does Clark teach signal processing circuitry that is coupled to electromagnetic transducer assemblies for processing the audio signals to obtain processed audio signals where the assemblies convert the processed audio signals into mechanical motion of corresponding zones of the headliner or mechanical mixing of the headliner to move the headliner as the Examiner contends. Clark does, in fact, teach, "The output of amplifier 164 is connected to speakers 22 such that a sum of the LP and RR signals is input to speaker 22 to present a center stage in the center of the vehicle for passengers in the rear seat." (Clark, col. 8, ll. 39-43).

Clark, in direct contrast to the Examiner's contention, further teaches, "[T]he space between the headliner and the bracket provides an uninterrupted air volume, and approaches a purely resistive termination, such that the space between the headliner and roof provides frictional surfaces which progressively dissipate sound propagating radially outwardly from each of the speakers mounted to the headliner. This unbaffled air volume thus effects pure, high quality sound reproduction from the speakers mounted in the vehicle headliner." (Clark, col. 6, ll. 41-49). As such, Clark fails to cure the deficiencies of Warnaka, Warnaka and Clark, alone or in combination, fail to provide all of the features of the presently pending invention, and the rejection should be reversed.

Regarding item (12), Response to Argument, as argued above, Warnaka fails to disclose, teach or suggest an array of piezoelectric transducers which can be substituted by electromagnetic transducers.


Regarding the submission of Macaulay, David, The New Way Things Work, 1998, page 228. A copy is provided to illustrate the difference between electromagnetic transducers that convert audio signals into mechanical motion of corresponding zones of a headliner, as claimed, and loudspeakers as taught by Clark.

Regarding the Examiner's conjecture that when a speaker is mounted on the headliner and the speaker produces sound, a portion of the sound energy is transferred to the headliner, effectively driving the headliner and the headliner functions as the speaker's diaphragm which radiates acoustic power and sound energy into the interior of the vehicle as claimed. First, the Examiner has failed to provide any evidence in Clark or any other art of record to support the conjecture that when a speaker is mounted on the headliner and the speaker produces sound, a portion of the sound energy is transferred to the headliner, effectively driving the headliner and the headliner functions as the speaker's diaphragm. Further, as noted above and in direct contrast to the Examiner's conjecture, Clark in fact teaches, "[T]he space between the headliner and the bracket provides an uninterrupted air volume, and approaches a purely resistive termination, such that the space between the headliner and roof provides frictional surfaces which progressively dissipate sound propagating radially outwardly from each of the speakers mounted to the headliner. This unbaffled air volume thus effects pure, high quality sound reproduction from the speakers mounted in the vehicle headliner." (Clark, col. 6, ll. 41-49). As such, the Examiner's conjecture mischaracterizes the teaching of Clark.

As a result, and for the reasons set forth above, a *prima facie* case of obviousness for the dependent claims has not been established. Accordingly, for the reasons presented above, as well as reasons presented in the Appeal Brief, the final rejection of claims 1-11, 13-23 and 25-41 should be reversed.

No additional fee is believed to be due as the result of the filing of this paper. However, any additional fees or credits should be applied to Deposit Account 02-3978 as authorized by the original transmittal letter in this case.

Respectfully submitted,
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